



VIDEO

FAQ

Q What is the difference between interlaced and progressive video?

A Video is simply a series of still pictures (frames) that are captured on a device and then played back. When these frames are run at a high enough speed, up to 60 frames per second (fps), the illusion of movement is created.

Progressive video is that simple. The camera captures up to 60 full frames per second and they are displayed in order. This means that every pixel in the image is recorded and displayed in every frame. Though ideal for image quality, this method uses massive amounts of data.

From the earliest days of television right up to current DVDs, this mass of data has been a problem. A number of methods have been devised with the aim of reducing the amount of data, or bandwidth, one of which is interlacing.

Interlaced video reduces the bandwidth by using fields instead of frames. Each field consists of either all the odd-numbered lines in the image or all the even-numbered lines. The fields are captured alternately by the video camera. This means it is using only half the amount of data per field. It also effectively halves the frame rate, as it requires two interlaced images to complete one frame, so a 50fps interlaced video is really 25fps.

A standard CRT television is specifically designed to play back this kind of interlaced video. The moving image is created by alternately drawing the captured fields. The result is good enough that the human eye cannot detect any flicker in the motion, but it must be noted that the actual vertical resolution has been halved.

Modern display devices, such as LCD monitors, are progressive-only devices. They draw one whole frame before moving on to the next. This means that they are ideal for viewing progressive video. Interlaced video, on the other hand, must be de-interlaced by the screen to form full frames before it can be displayed. The resulting quality of this process depends entirely on the electronics of the display device.

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▲ Interlaced video consists of 'fields' of alternating lines that make up the finished moving image

REVIEW HDV CAMERA

SONY
HDR-HC1E

RATING ★★★★★

PRICE £1,133 inc VAT

SUPPLIER www.dabs.com

DETAILS www.sony.co.uk



High-definition (HD) camcorders first became available last year, with Sony's £2,500 HDR-FX1 leading the field. Sony has now introduced the first HD consumer camcorder, the HDR-HC1E.

It's a lot cheaper than the FX1, as it's based around CMOS rather than CCD sensor technology. CMOS sensors are cheaper, but performance in low light is not as good. Give the HDR-HC1E enough light, though, and it produces stunning video. There is a lifelike quality to the video, with fantastic detail. Colour reproduction is the equal of many 3CCD models we've seen. There's some noise in the image, but less than with standard definition camcorders.

Video is captured in the 1080i HD format. This means that it is an interlaced signal, with alternate lines captured on alternate frames (see FAQ, left). This makes the camcorder less suitable for recording high-speed motion. Playback to an LCD TV is done through a component output. The TV then has to translate the interlaced signal to a progressive one for display, as well as resize it to fit the more common 720p resolution. Cheaper HD displays may struggle with this process.

All this video is captured to a standard MiniDV tape. This has been made possible by improvements in compression technology. One downside to this is the need to use better-quality MiniDV tapes. Footage on our old test tapes showed a number of artefacts where video data had been lost.

HD footage can also cause headaches when it comes to editing. The HC1E does not come with any capturing or editing software, so we would not



recommend it to novice users. Some editing packages offer HD-compatible software, although you will usually need the expensive version. For example, Adobe Premiere supports HD, while Adobe Premiere Elements does not.

The design and usability of the camcorder are excellent. It has an image stabiliser and a 10x optical zoom with excellent controls. The large 16:9 LCD is bright and has excellent viewing angles, though it cannot live up to the HD footage being recorded. Therefore for manual focus, the viewfinder is essential. Other manual controls include exposure, backlight and nightshot mode.

Camcorders are in a transitional period, with HD and hard disk storage appearing for the first time. Unfortunately, that once-in-a-lifetime event isn't going to wait for camcorder technology to settle down. If you want the best-quality video today, the HDR-HC1E is the only consumer choice.

Seth Barton

✓ HD resolution video; attractive, traditional camcorder design

✗ Needs expensive HD-compatible editing software

SPECIFICATIONS HDV camcorder, MiniDV storage, 1/3" CMOS sensor, 10x optical zoom, USB2 and FireWire interfaces, component and composite output. **Part code** HDR-HC1E

HOTLIST TV TUNER

FREECOM
DVB-T USB Stick

RATING ★★★★★

PRICE £50 inc VAT

SUPPLIER www.dabs.com

DETAILS www.freecom.com

This is the smallest USB digital TV tuner we've ever seen and

it's very easy to install. The software's interface isn't brilliant, but it's sufficient for watching or recording the odd show.

For notebook owners who want to watch the occasional programme, it's ideal. It is cheap and the picture quality is good, although you may need a rooftop aerial, depending on the DVB reception in your area.

SPECIFICATIONS RF input, MPEG2 capture format, USB Hi-Speed interface



HOTLIST HARD DISK CAMERA

JVC
GZ-MG20

RATING ★★★★★

PRICE £457 inc VAT

SUPPLIER www.novatech.co.uk,

08701 120612

DETAILS www.jvc.co.uk

The GZ-MG20 has a built-in 20GB hard disk, which will store a massive nine hours of video on its normal quality setting. You can browse thumbnails on the LCD screen for instant playback, and transfer video to your computer by simply dragging and dropping files. The rest of the device feels like a standard MiniDV camcorder. It's ideal for the occasional camcorder user.

SPECIFICATIONS Hard disk camcorder, 20GB storage, 1/3" CCD, 25x optical zoom, USB Hi-Speed interface. **Part code** GZ-MG20U



REVIEW TV TUNER**AVERMEDIA
AVerTV Hybrid+FM Cardbus**

RATING ★★★★★

PRICE £59 inc VAT

SUPPLIER www.misco.co.uk, 0800 038 8880DETAILS www.averm.co.uk

In *What's New*, December 2005 we looked at two USB TV receivers that were ideal for notebook use. For those short on USB2 ports, though, there is an alternative: Avermedia's PC Card TV tuner, which supports analogue and digital broadcasts.

Installation was simply a question of slotting the card into the spare PC Card slot on the side of our notebook. Owners of older notebooks may already be using this slot for a wireless networking card, in which case a USB device would be a better choice. We then ran the setup disc, which installed the drivers and software without a hitch. Upon launching the application for the first time, we were shown the channel scan tool, which promptly found all the expected channels.

The digital channels were not arranged in the order you'd receive from a digital set-top box – BBC1, BBC2, ITV, C4 and so on – but fortunately you can reorder them as well as remove channels you don't watch. Analogue channels work similarly but you have to name them yourself.

Picture quality was good. Digital broadcasts were clear and suffered from no decompression artefacts, although there was a bit of general noise in the picture that was probably created during the upscaling process. Analogue pictures were excellent by our aerial's standards, with only a little ghosting.

Avermedia's software isn't the best available but it functions well enough. The basic interface works well in either a windowed or full-screen mode. The timeshift function is well implemented, with a convenient bar to show the current time



delay. The EPG is poor, however. It gathers schedules only from channels you've watched, and you can view just one channel at a time. This obviously impacts on your ability to set up recordings.

We've seen Avermedia's excellent remote before. It is well laid out and the buttons are clearly marked. Here it works brilliantly with the PC Card, which was able to detect the IR remote from what seemed like any angle and is a big improvement on many USB products we've seen. Unusually it was able to power on and off the notebook itself.

As this is a hybrid device there are plenty of inputs available. As well as the RF input for digital and analogue broadcasts, composite, S-video and phono inputs are available through a dongle. You can switch easily between the various inputs in the software. This is great when you're on the move and want to check whether analogue or digital reception is better.

With its reasonable price, flexibility and great remote control, this card gets our recommendation. If you want to add TV to your notebook using the PC Card slot, this is the product for you.

Seth Barton

 Analogue or digital TV; great remote control; inexpensive

 Poor EPG

SPECIFICATIONS RF, line in, composite and S-video inputs, MPEG2 capture format, CardBus interface. **Part code** A16AH

HOTLIST PORTABLE DVD PLAYER**MUSTEK
PL510**

RATING ★★★★★

PRICE £230 inc VAT

SUPPLIER www.meggydogcomputers.co.ukDETAILS www.mustek.com

With a large 10" screen, Mustek's PL510 portable DVD player is a joy to watch and it still fits comfortably in your lap. It supports Dolby Digital stereo, so listening to movies using headphones is an enjoyable experience.

Battery life is an acceptable two-and-a-half hours, which will let you watch all but the longest films. Unfortunately it lacks DivX playback for home video encoders.

SPECIFICATIONS 10" LCD, 2½ hours' playback, multi-region DVD, SD/MMC card reader. **Part code** PL510

**HOTLIST STREAMING MEDIA PLAYER****PINNACLE
ShowCenter 200**

RATING ★★★★★

PRICE £162 inc VAT

SUPPLIER www.savastore.comDETAILS www.pinnaclesys.com

The ShowCenter 200 streams media files from your PC to your living room using Microsoft's Windows Media Connect software. It supports all the most common photo, audio and video file types and is easy to install. Its wired and wireless connections mean it will fit into any home network, too. Best media player on the market.

SPECIFICATIONS 1.5GHz PC required with Windows XP with SP1 and 256MB RAM; SCART, component, S-video, and composite video outputs, two stereo phono, optical and coaxial S/PDIF audio outputs, USB, 100Mbit/s network, wireless 802.11g

**CHOOSING A...****VIDEO
CAPTURE
DEVICE** **Step-by-step guide to buying the ideal video capture device**

A video capture device lets you record video from a camera to your hard disk ready for editing. Almost all such devices come with software, although its capabilities can vary.

1 Consider the type of inputs you need. Analogue cameras will have a composite output and probably a superior S-video out too, plus stereo audio outputs. Digital video cameras also include a FireWire port, which allows perfect digital transfers to the PC and often back to tape.

2 Video and audio outputs on the capture device allow you to record edited video back to tape. Some systems transmit the editing software's preview display to these outputs for full-screen previews on a TV while you edit.

3 Most capture devices are in the form of PCI cards. If you don't have a spare PCI slot or want a device you can move between PCs, go for a USB or FireWire device. Check that such devices can deliver the video quality you require.

4 Digital video needs to be compressed. The cheapest capture devices rely on software to do this, but hardware encoding is more reliable. Choose a device that compresses to MPEG2 or DV AVI, which give better image quality than other video formats.

5 High-end devices provide hardware acceleration for the editing process, allowing transitions and effects in real time. These features will be available only with the bundled editing software, so make sure it's the one you want to use.

FILL IN YOUR SPECS HERE
(Recommended minimum in grey)

INPUTS: Composite

OUTPUT: None

INTERFACE: PCI

HARDWARE COMPRESSION: None

RENDER ACCELERATION: None